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CENTRAL INTELLIGENCE AGENCY
INFORMATION REPORT

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25 YEAR RE-REVIEW

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REPORT

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1. The former Sousedik firm in Vsetin (N 49-20, E 18-00) became MEZ Vsetin, National Enterprise, in 1946. Prior to 1946, Sousedik manufactured low-output dynamometers on rare occasions only. MEZ Vsetin began production on a series of dynamometers in 1946; by late summer 1954, a total of 10 to 15 dynamometers of this series were completed. They were AC dynamometers and were three-phase, AC commutator motors of the Winter-Eichberg type. The dynamometers in this series were of various sizes; for example, KS 50 was the largest type in this series ("K" stands for a three-phase AC commutator motor; "S" stands for dynamometer; "50" is the outer diameter, in centimeters, of the stator lamination), KS 47 was the medium size, and KS 37 or perhaps KS 25 was the smallest type.

The high-speed dynamometer such as the KS 50 type with 4,000 rpm. proved to be unsatisfactory; therefore, only dynamometers which were not high-speed continued to be produced, that is, those which were up to 2,000 rpm. The KS 47 type was delivered to Motorlet, National Enterprise, in Prague-Jinonice.

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2. In 1948 MEZ General Management received an order destined for the Soviets (MashinoImport), for dynamometers meeting the following specifications:

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- a. 400 kw continuous mechanical input at 4,000 rpm. The order stipulated that one hour of testing be performed for 500 kw at 5,000 rpm. Two units of this type were ordered.
- b. 200 kw continuous mechanical input at 5,500 rpm. One hour of testing was to be performed for 250 kw at 6,900 rpm. Two units of this type were ordered.
- c. 50 kw continuous mechanical input at 8,000 rpm. One hour of testing was to be performed for 62.5 kw at 10,000 rpm. Six units of this type were ordered.

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The dynamometers were to be delivered during 1949. MEZ Management asked both MEZ Vsetin and MEZ Development for their suggestions; actually,

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MEZ Vsetin proposed to fill the order with DC machines but MEZ Development proposed the use of three-phase, AC commutator motors. The latter suggestion was accepted. The decision was made by Smok (fnu), at that time one of the executives of the Ministry of Heavy Machinery Construction. The dynamometers were both calculated and designed by MEZ Development and produced by MEZ Vsetin. The largest type (see a. above) was the KS 71, the medium type (see b. above) was the KS 63, and the smallest type (see c. above) was the KS 40. Two units of the KS 63 type were manufactured in MEZ Vsetin during 1951. They proved to be completely unsatisfactory. Because of excessive vibration, they developed excessive sparking when operated at high speed, even with no load. After learning this, Klima decided to fill the order with squirrel-cage induction motors. These models were called AND 63, AND 50, and AND 37 types.

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Each dynamometer was fed with variable frequency from a generator driven by an AC commutator motor. These dynamometers were also calculated and designed by MEZ Development and produced by MEZ Vsetin. The Soviets had no knowledge of the status of their order. They were always told they must wait a little longer. The six units of type AND 37 were delivered during 1953 and both units of type AND 50 were delivered in the first half of 1954. The two units of type AND 63 were in the process of being tested during the summer of 1954. They proved to be unsatisfactory because the induction regulators overheated and, therefore, the possibility of manufacturing new induction regulators which would be larger than the original ones was under consideration. The manufacture of these new larger regulators would postpone the time of delivery at least another year.

3. During 1951, MEZ Vsetin received another order destined for the USSR for dynamometers meeting the following specifications:

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- a. The largest type was to be rated for 150 kw mechanical input at from 1,000 to 4,000 rpm.
- b. A medium type was to be rated for 75 kw mechanical input at from 1,000 to 4,000 rpm.
- c. The smallest type was to be rated for 25 kw mechanical input at 6,000 rpm.

These dynamometers were designed as DC machines of the MS 4532 type ("MS" stands for DC machine, "45" is the diameter of the armature in centimeters, "32" is the length of the armature in centimeters), MS 4518 type, and MS 1713 type, respectively. In contrast to the usual procedure, the dynamometers were not connected to Ward-Leonard motor generator sets but their electric output was dissipated into resistances. The smallest type, the MS 1713, was delivered during 1952 or early 1953 and was the first to be delivered. It had been tested at full torque at 8,000 rpm and at 10,000 rpm with no load. It was tested at MEZ Development. The other two types were delivered at the end of 1953. MS 4532, the largest type, was tested at 5,000 rpm with full-rated current to test the commutation.

4. Sometime during 1952, the Soviets ordered approximately 20 dynamometers of various sizes. All of them were calculated, designed, and produced at MEZ Vsetin. They were DC machines, most of which were connected to Ward-Leonard motor generator sets. The most powerful

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and largest was the MS 4525 type rated for 200 kw mechanical input at from 1,500 to 5,000 rpm. Another dynamometer, probably the MS 2821 type, was rated for 200 kw mechanical input at 5,000 rpm. The remaining dynamometers had mechanical input of less than 200 kw and had, with one exception, less than 5,000 rpm. There were types such as MS 4518, MS 4511, MS 2812, and probably MS 1713. In this series of dynamometers the MS 4532 type, as designed for the Soviet order (mentioned under paragraph 3 above), was gradually adapted to the MS 4511 type; in other words, the length of the armature ranged from 32 cm. down to 11 cm. while the diameter of the armature remained the same for all types, i.e., 45 cm. This was done to make the task of the designers less difficult. On the other hand, it was considerably more expensive to produce dynamometers of these types than it would be to produce dynamometers rated for the same mechanical input but with armatures which were longer and smaller in diameter. This would be especially true of high-speed dynamometers; for instance, type MS 4511 which had a rating of 5,000 rpm. This series of dynamometers was under full production by late summer 1954. Some of them were near completion but none were delivered by that time.

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5. Dynamometers of the same category mentioned in paragraph 4 above were also produced for domestic customers:

- a. In late 1951 or early 1952, MEZ Vsetin had two dynamometers in production for the Ministry of National Defense;

According to the current rate of production, the dynamometers would be completed by early spring 1955. The two dynamometers were of different sizes. One was rated for a mechanical input of 80 hp at 1,500 rpm, adjustable to 5,000 rpm. the other dynamometer was rated for a mechanical input of 150 hp at 1,500 rpm, adjustable to 4,000 rpm. Each dynamometer was connected to a Ward-Leonard motor generator set and was fitted with amplidyne regulation for maintaining a constant speed; the small type by means of voltage regulation, the large type by means of a tachogenerator as pilot generator. The tachogenerator was probably supplied by MEZ Nachod (N 50-25, E 16-10) and was referred to as type Kks. Both dynamometers were designed by MEZ Vsetin. The larger was designed especially for this order and the smaller was similar to the MS 2821 dynamometer which was already under production in the plant. the larger dynamometer was type MS 40, length of armature probably 25 cm.

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- b. One dynamometer rated for 200 kw mechanical input at from 1,500 to 3,000 rpm, a type MS 45 was manufactured for MEZ Frenstat, National Enterprise, in Frenstat pod Radhosten (N 49-33, E 18-13).
- c. Three dynamometers, low-speed for low mechanical inputs such as 10 kw, were being produced for the testing plant of the Research Institute for Strong-Current Electric Machinery in Bechovice (N 50-05, E 14-37).

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None of the dynamometers had been delivered as of late summer 1954.

6. SHD Most (North Bohemian Lignite Mines) in Most (N 50-32, E 13-39) placed an order for one dynamometer, type MS 6321, rated for 600 kw mechanical input at 3,000 rpm. This order was cancelled in 1952.

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In spite of the cancellation, MEZ Vsetin continued to work on the dynamometer which was to be developed as a prototype and used in the testing plant of the enterprise. The manufacturing of some of the parts was completed by summer 1954.

7. Another group of dynamometers were either in the process of being designed or already designed but not yet in production as of late summer 1954:
 - a. Two units for OKD Ostrava (Ostrava-Karvina Coal Mines) to be used for testing induction motors. One was rated for 270 kw mechanical input at 750 rpm (370 hp) and for 294 kw mechanical input at from 1,000 to 3,000 rpm (400 hp). This unit was type MS 71, length of armature probably 28 cm. The other unit was for about half the mechanical input of the above-mentioned unit.
 - b. One unit, type MS 1713, rated for 32 kw mechanical input at from 8,000 to 10,000 rpm, which was probably destined for Bulgaria or Rumania.
 - c. One unit, type MS 35, and one unit, type MS 50 both low-speed dynamometers. One of these, probably the MS 35, was for Rumania and the other was for the Skoda Works, Hradec Kralove, for their diesel engine testing plant in Plotiste (N 50-14, E 15-48).
8. One dynamometer, type MS 7123, rated for 620 kw mechanical input at from 2,000 to 2,400 rpm with a Ward-Leonard motor generator set equipped with amplidynes, destined for a diesel-engine testing plant, was ordered in 1951 or 1952. The order was classified "confidential". It was rumored that the equipment was for a testing plant which tested diesel engines for tanks, originally located in Horovice (N 49-50, E 13-55) and later at another place, perhaps in Plotiste. The order was cancelled during 1953, allegedly because the project for which the equipment was to be delivered was discontinued. Because of the cancellation the customer had to pay fines to MEZ Vsetin and MEZ Development. Prior to the cancellation of this order, the Horovice testing plant or its project was liquidated.
9. At the end of 1953, inquiry was made about a dynamometer for testing friction wear on large tires. It was proposed that a dynamometer might be connected to a cylinder on which the tire would revolve. After some study, MEZ Vsetin came to the conclusion that, because of technical difficulties, it was impossible to make the equipment as requested.
10. At the end of 1953, the plant for repairing railroad draisine engines located at the railroad station in Hranice (N 49-33, E 17-44) made inquiry about a dynamometer to be used for testing overhauled engines. No decisions regarding this dynamometer had been made as of late summer 1954.
11. MEZ Vsetin was the only plant in Czechoslovakia which produced dynamometers rated for mechanical input up to approximately 1,000 kw; although the calculation and design of new types of dynamometers in this category was usually the responsibility of MEZ Development. MEZ Development was not as experienced in this field as MEZ Vsetin; however, according to the administrative setup of the Main Administration of Strong-Current Electric Machinery Construction, MEZ Development was responsible for the designing. MEZ Vsetin would not be eager to compete with MEZ Development in the calculation

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UNCODED design of new types of dynamometers in this category because of the risk involved. The dynamometers were not produced in MEZ Vsetin to be kept on stock. They were produced only when a particular order was placed. [] the design and production of dynamometers rated for a mechanical input of over 1,000 kw would be the responsibility of the Skoda Electric Factory in Pilsen or CKD Stalingrad in Prague.

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1. [] Comment. The testing conditions stipulated by the Soviets were that each dynamometer was to be tested at full torque and at 25% higher number of revolutions per minute than its continuous rating.

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